



Chemical and Material Risk Management Directorate

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Regulatory and Other Trends Relevant to Acquisition and Planning for the Future Defense Industrial Base

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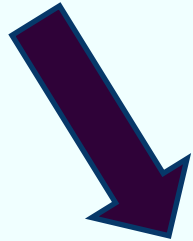
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E2S2 2011

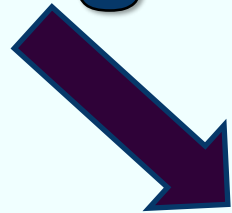
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Foresight



Insight



Actions that

- ❖ Reduce Costs

- ❖ Sustain DoD Readiness



Foresight

❖ Take Time to Paint a Vision for the Future

- Figure out the big trends in the future
- Plot effective long-term strategies

❖ Recognize What's Inevitable

- Fearlessly embrace it
- Clear a path to extraordinary opportunity



Credit: James Duncan Davidson/O'Reilly Media, Inc.

...reported by Fast Company's
E. B. Boyd on 10/25/10

IFTF Foresight: 2017

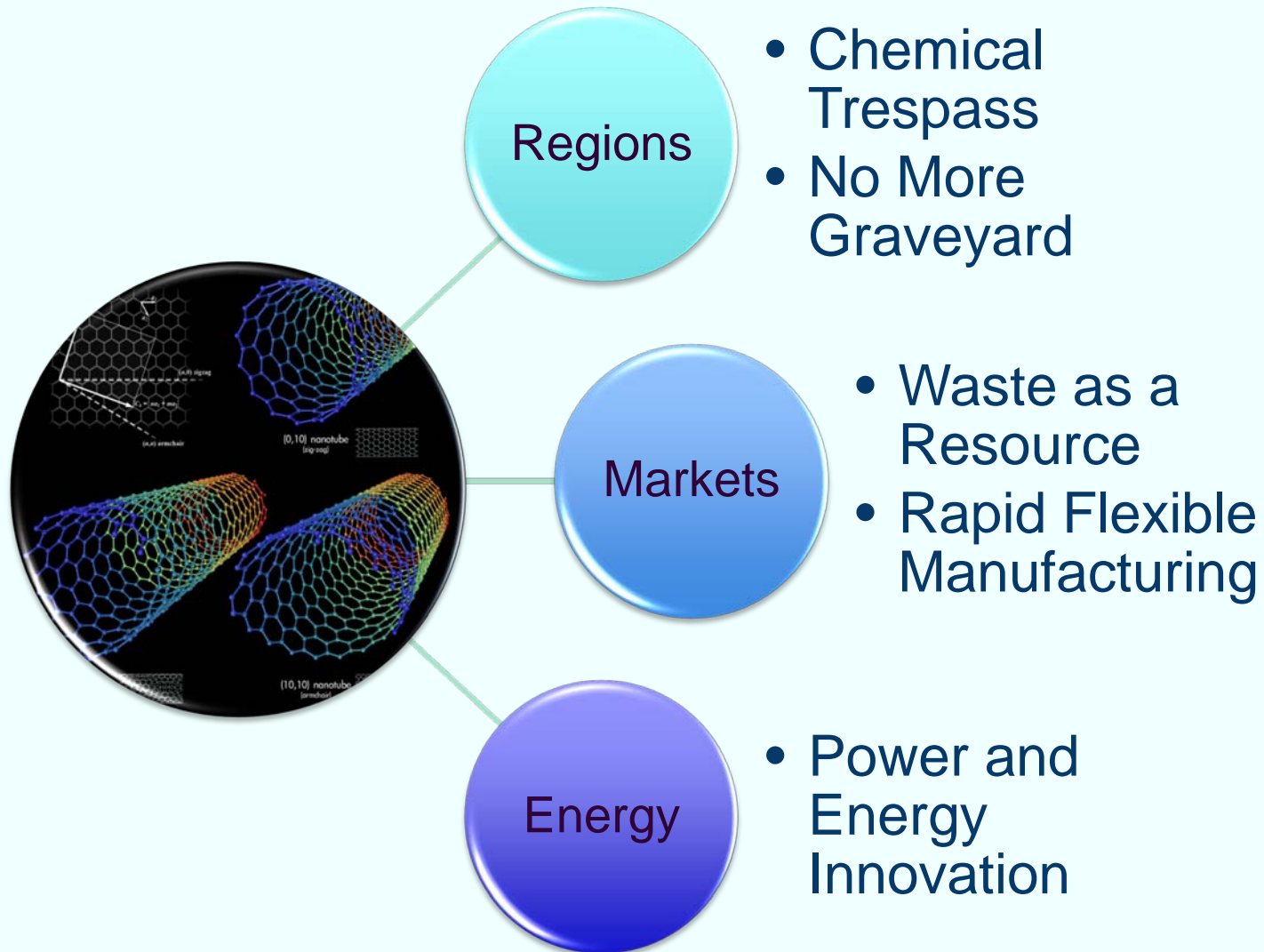
Driving Forces

- ❖ An imperative for looking long
- ❖ A planet at risk
- ❖ Marginalized populations redefine the mainstream
- ❖ Participatory culture drives change
- ❖ New commons create new value
- ❖ A new material world

Impact Areas

- ❖ People
- ❖ Regions
- ❖ Built Environments
- ❖ Nature
- ❖ Business
- ❖ Energy

A New Material World



Current Context



NASA, Earthrise - Apollo 8

❖ Global Environment, Economy and Society

- Energy Supplies
- Market Competition
- Climate Change
- Chemical Concerns
- Global Supply Chains
- Control over Raw Materials
- Concerns over Disposal

Plethora of Chemical Laws, Regulations, & Agreements



- ❖ **Toxic Substances Control Act -- US, enacted 1976**
- ❖ **Restriction of Hazardous Substances (ROHS) -- EU, effective 2006 with immediate worldwide impact...e.g. on use of lead in electronics**
- ❖ **Waste Electrical and Electronic Equipment Directive (WEEE) -- EU, effective 2005- 2007, Worldwide impact on supply chains.**
- ❖ **Registration, Evaluation, Authorization and Restriction of Chemical Substances (REACH) -- EU, effective 2007. Worldwide impacts starting to be felt.**
- ❖ **Globally Harmonized System of Classification and Labeling of Chemicals -- International, rolling out now...US implementation still expanding**
- ❖ **SB 484 and 1379 -- CA, 2005 and 2006, disclosure of chemicals in cosmetics and US's first bio-monitoring program cataloguing human exposure to chemicals.**

New and Evolving Chemical Laws & Regulations

❖ California's Green Chemistry Initiative



- Backbone - two laws.
 - AB 1879 establishes authority for the Ca. Dept of Toxic Substances Control (DTSC) to develop regulations that create a process for identifying and prioritizing chemicals of concern and to create methods for analyzing alternatives to existing hazardous chemicals. Allows DTSC to restrict or ban chemicals.
 - California DTSC and EPA have an MOA on sharing data on decision making.
 - SB 509 creates an online Toxics Information Clearinghouse to increase consumer knowledge about the toxicity and hazards of thousands of chemicals used in California every day.
- DTSC actions
 - Green Chemistry Draft Regulation for Safer Consumer Products

New and Evolving Federal Chemical Laws

❖ **Broad, bipartisan support for TSCA modernization**

❖ **Safe Chemicals Act reintroduced April 13, 2011**

❖ **Senate Hearings**



- **Consumers Specialty Products Association:** “moves in the right direction as it seeks to adopt important concepts of prioritization and tiered minimum data set requirements” (4/14/11)
- **National Petroleum and Refiners Association:** “would give EPA unprecedented authority over the American economy, allowing the agency to make decisions on what materials can and cannot be used in manufacturing without requiring scientific justification for those decisions” (4/14/11)
- **American Chemistry Council,** did not support 2011 bill but agreed that “EPA should prioritize chemicals for safe use determinations to focus on chemicals of highest concern; the chemical industry should provide robust information in a transparent manner on the chemicals it produces; and companies and EPA should work together to enhance public access to chemical health and safety information.

Why?

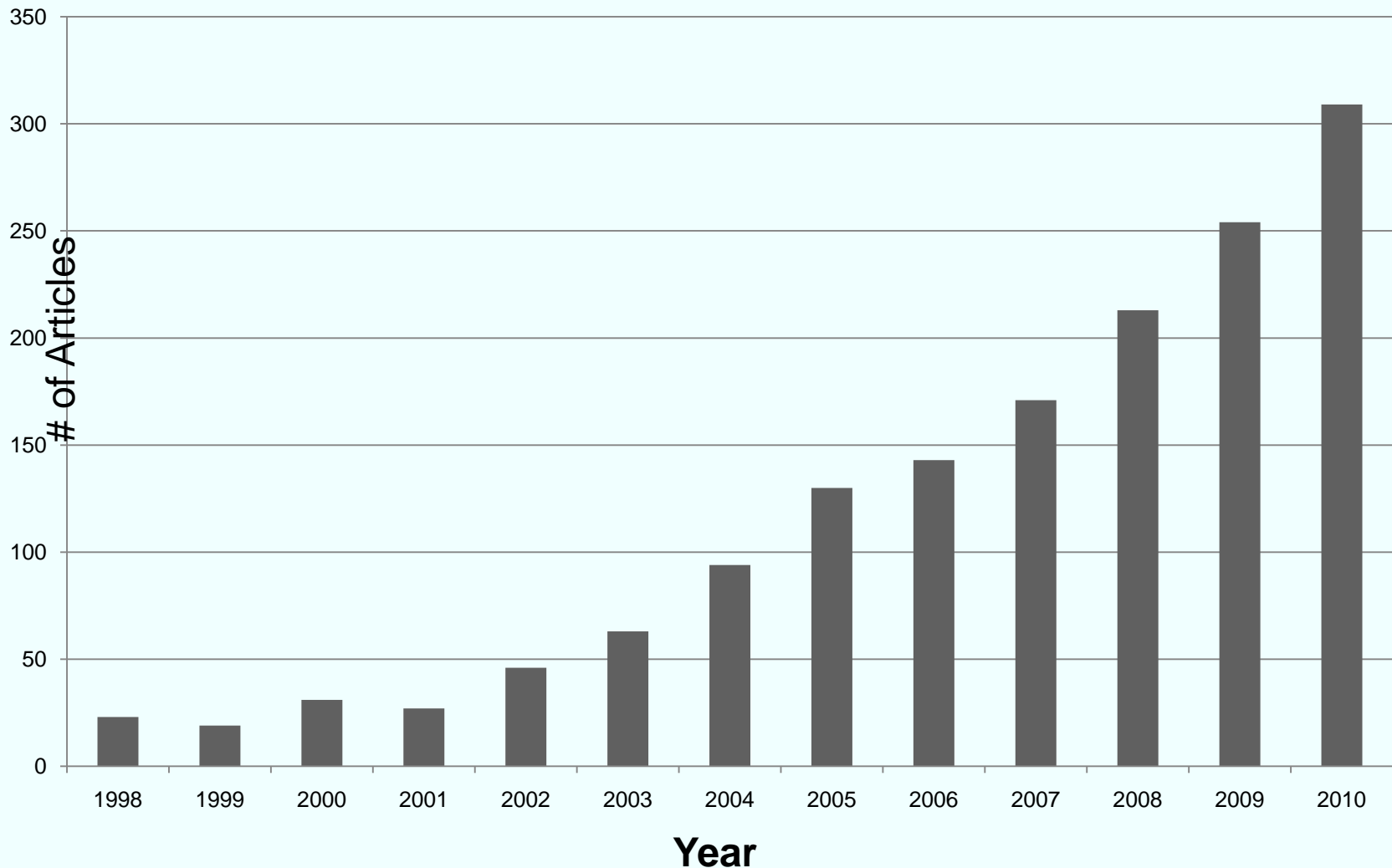
- ❖ **Biomonitoring shows bioaccumulation of chemicals in humans and animal kingdom**
- ❖ **New understanding of intergenerational effects**
- ❖ **Public/worker concern over chemicals exposure increasing**
- ❖ **Chemical by chemical, product by product approach not seen as working**



Expected Outcomes

- ❖ Limiting or eliminating some chemical & material availability
 - Increased costs for certain chemicals/articles
- ❖ Formulations Changing
 - Undisclosed substitution of chemicals in some COTS products
- ❖ Increased need for supply chain accountability
 - Data bases & systems being created
- ❖ Changing MSDS, transportation requirements

Number of Articles on One Group of Emerging Contaminant Issues



Source S. Glassmeyer, USEPA.

Opportunities to Minimize Adverse Effects

❖ Trends and new regulations signal the need for development and testing of alternative, more sustainable materials with lower operating costs

❖ Chemical and material choices have life cycle implications – in terms of risks and costs

❖ DoD has used foresight to create insights and in some cases proactive measures....but are we doing enough through changes in Acquisition decision making?

Wise design of weapons systems and their sustainment involves consideration of life cycle impacts of chemicals and materials... and will affect sustainability success

DOD's Strategic Sustainability Performance Plan

❖ **The ability to operate into the future without decline – either in the *mission* or in the natural and manufactured systems that support it.**



SSPP Objectives, Goals, and Metrics



OBJECTIVE 1

Continued Availability of Critical Resources

- Goal 1 – Use of Fossil Fuels Reduced
- Goal 2 – Water Resources Management Improved



OBJECTIVE 2

DoD is a U.S. Government Leader in Reducing GHGs

- Goal 3 – Scope 1 & Scope 2 GHG Emissions Reduced 34% by 2020, relative to FY08
- Goal 4 – Scope 3 GHGs reduced 13.5% by 2020, relative to FY08



OBJECTIVE 3

Minimize Waste and Pollution

- Goal 5 – Solid Waste Minimized and Optimally Managed
- Goal 6 – Chemicals of Environmental Concern Minimized



OBJECTIVE 4

Management and Practices Built on Sustainability & Community

- Goal 7 – Sustainability Practices Become the Norm
- Goal 8 – Sustainability Built into DoD Management Systems

Chemical & Materials Sustainability Ensures Long Lasting Performance

Benefits to DoD

❖ **Strengthens DoD Operational Capacity**

- Meet current and future training, testing, and other mission requirements by sustaining energy, land, air & water resources

❖ **Reduces Costs**

- Minimize total ownership costs
 - Reduced Regulatory Compliance Costs

❖ **Enhances Well-Being**

- Of our Service personnel, civilians, families, & neighbors

LOWERS RISKS....LOWERS LIFE CYCLE COSTS

Key Take Aways

❖ **Foresight leads to actionable insights**

- New materials and more resource constraints can be reasonably foreseen
- Thinking about sustainability provides insights that save money, create flexibility, improves mission capabilities

❖ **Sustainment & sustainability are critical to mission success**

- Requires complex systems and long-term thinking

